



1st Stakeholder Meeting for the development of a Clean Up Plan (Implementation Plan) for the South Fork Holston River Watershed

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DEQ Southwest Regional Office

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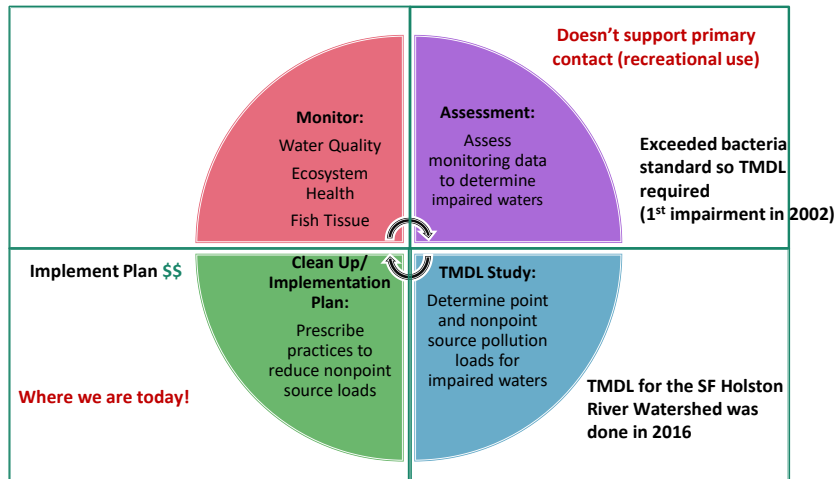
Introductions

What do we hope to accomplish today?

- Remind ourselves of Virginia's water quality process
 - TMDL
 - Implementation Plan (Clean Up Plan)
- Discuss how to reduce bacteria in the watershed
 - Residential septic/urban
 - Agriculture
- Next steps

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Virginia's Water Quality Process



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Assessment: The Clean Water Act (CWA) that became law in 1972 requires that all U.S. streams, rivers, and lakes meet certain water quality standards. The CWA also requires that states conduct monitoring to identify waters that are polluted or do not otherwise meet standards. Through this required program, the state of Virginia has found that many stream segments do not meet state water quality standards for protection of the six beneficial uses:

- 1- recreation/swimming (boating/swimming)
- 2- aquatic life
- 3- wildlife
- 4- fish consumption
- 5- shellfish consumption
- 6- public water supply (drinking)

TMDL Study: Maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. When streams fail to meet standards, the stream is "listed" in the current Section 303(d) report as requiring a Total Maximum Daily Load (TMDL). Section 303(d) of the CWA and the U.S. Environmental Protection Agency's (EPA) Water Quality Management and Planning Regulation (40 CFR Part 130) both require that states develop a Total Maximum Daily Load (TMDL) for each pollutant.

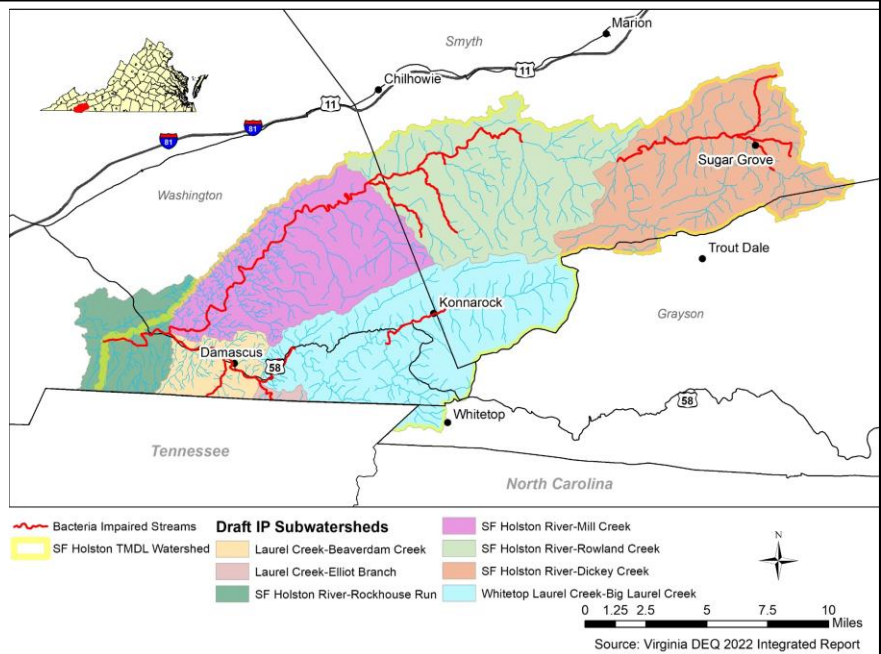
Load allocation= nonpoint sources

Waste load allocation= point sources

Clean Up/IP: Once a TMDL is developed and approved by EPA, measures must be taken to reduce pollution levels in the stream. Virginia's 1997 Water Quality Monitoring, Information and Restoration Act (WQMIRA) states in section 62.1-44.19:7 that the "Board shall develop and implement a plan to achieve fully supporting status for impaired waters". The Implementation Plan (IP) describes control measures, which can include the installation of best management practices (BMPs), which should be implemented in a staged process. Through this process, states establish water-quality based controls to reduce pollution and meet water quality standards.

Impaired stream segments

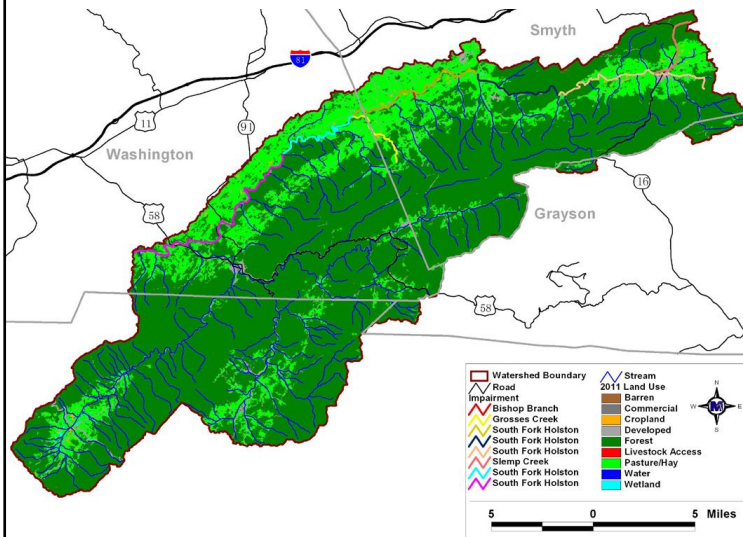
Impaired Streams	Initial Listing Year
Slemp Creek	2010
Cressy Creek	2022*
SF Holston	2010
SF Holston	2002
Saint Clair Creek	2016*
Bishop Branch	2010
Grosses Creek	2010
Whitetop Laurel	2012
SF Holston	2006
SF Holston	2004
Laurel Creek	2022*
Beaverdam Creek	2022*



12 impaired segments within the SF Holston watershed

* New impaired segments since the TMDL was completed in 2016

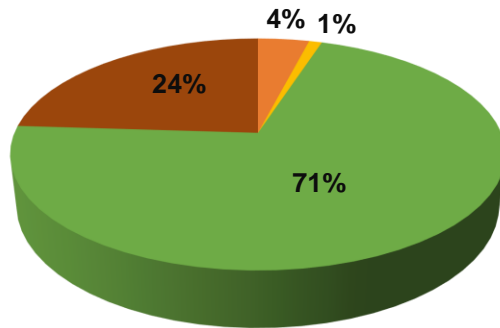
From the TMDL study: Land Use



Land use	Area	
	%	Acres
Forest	76	150,340
Agriculture (pasture/hay, livestock access)	19	38,631
Developed, commercial	3	6,572
Water	1	2,119
Cropland	0.2	407
Barren, wetland	0.1	285

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From the TMDL study: **Bacteria Source Assessment**



- Humans (straight pipes and failing septic systems): 4%
- Pets: 1%
- Agriculture (pasture/hay, livestock access): 71%
- Wildlife: 24%

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Not addressing wildlife in the Implementation Plan

From the TMDL study: Bacteria Load Reductions

Stage	Source Reduction from					Percent Exceedance	
	Wildlife in Stream	Livestock in Stream	Agricultural Land	Residential & Urban Land	Straight Pipe & Sewer Overflow	GM* > 126 cfu/100 ml	Single Sample > 235 cfu/100 ml
Current	0%	0%	0%	0%	0%	75	23
TMDL Goal	0%	93%	88%	77%	100%	0.0	9.95

* GM= geometric mean criterion

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Wildlife in Stream- no need to reduce wildlife load to reach TMDL.

Livestock in Stream- Install practices to restrict direct livestock access to stream to reduce load by 93%

Agricultural Land (pasture, hay and cropland)- Install practices to reduce load by 88%

Residential & Urban Land- Repair/replace residential septic systems/straight pipes and/or connect to sewer lines to reduce load by 77%. The TMDL can be met without reductions in pet waste. Pet waste can still be included in this IP to help with reductions (recommend to consider including so that practices are eligible for funding).

Straight Pipe & Sewer Overflow- address all issues to reduce load 100%.

Let's dive in! Residential Overview

Within the South Fork Holston River watershed, estimated totals (TMDL, 2016):

On Public Sewer	Permitted Residence (General Permit)	Total Septic Systems	Houses with Failing Septic Systems	Houses with Straight Pipes
436	7	6,284	209	337
These are the ones to address in plan				

Do these numbers still look accurate?

If not, how should they be adjusted?

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Potential Residential wastewater practices to reduce bacteria load

Based on the DEQ BMP Manual (FY23):

Control Measures	% Effectiveness	Source	Units	Cost/Unit
Septic Tank Pump-Out (RB-1)	5%	1	System	\$400
Connection to Public Sewer (RB-2)	100%	2	System	\$11,000
Connection to Public Sewer with Pump (RB-2P)			System	\$18,000
Septic Tank System Repair (RB-3)	100%	2	System	\$5,000
Septic Tank System Installation/Replacement (RB-4, RB-4P)	100%	2	System	\$8,000 \$12,000
Alternative On-site Waste Treatment System (RB-5)	100%	2	System	\$24,000

1- VADEQ. 2017. Guidance Manual for Total Maximum Daily Load Implementation Plans

2 - Removal efficiency is defined by the practice

3 – Chesapeake Assessment Scenario Tool – BMP effectiveness values by land use and pollutant

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These potential practices are based on previous IPs and just a proposed list to see what's available. We'll discuss more specifics at the next meeting once we have more estimates figured out.

Potential pet waste practices to reduce bacteria load

Based on the DEQ BMP Manual (FY23):

Control Measures	% Effectiveness	Source	Units	Cost/Unit
Pet Waste Disposal Station (PW-1)	75%	1	number	\$600
Pet Waste Treatment (PW-2)	100%	2	number	\$200
Pet Waste Treatment for Confined Canine Facilities (PW-3)			number	\$16,000
Pet Waste Education Program	50%	1	program	\$5,000

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These potential practices are based on previous IPs and just a proposed list to see what's available. We need feedback to verify the costs—have they gone up? We'll discuss more specifics at the next meeting once we have more estimates figured out.

What needs to be done to address Residential Septic/pet waste sources of bacteria?

1. Aware of current problems/issues with failing septic and/or straight pipes? Any particular area to focus on?
2. What % of failing septic systems need to be repaired vs. replaced?
3. Of the failing systems and straight pipes, what % would require a conventional system vs. an alternative system?
4. What's the possibility to hook up to sewer? Any new projects in future?

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Continued...What needs to be done to address Residential Septic/pet waste sources of bacteria?

5. Aware of areas on public sewer that may smell of sewage or leak/overflow?
6. What's the best way to recruit interest? Best outreach/education methods?
7. Is there interest in pet waste stations? Where?
8. What funding sources/organizations could help with paying for repairs, replacement of septic systems or sewer connections? Pet waste stations?
9. Any barriers to implementation in this watershed?

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If there is a problem with overflows, it can be discussed in the IP but this is a permitted issue; so no practices will be included since is this addressed by a permit. The assumption is that the town/County is aware of the issue and addressing it via their permit.

Next is... Agriculture Overview

Best management practices (BMPs) installed since 2016:

BMP Name	BMP Code	Number	Units	Amount
CREP riparian forest buffer	CP-22	4	Acres	1.2
CREP stream exclusion with grazing land management	CRSL-6	4	Linear feet	2,200
Long term vegetative cover on cropland	SL-1	9	Acres	116.5
Stream exclusion with grazing land management	SL-6	2	Linear feet	4,300
Stream exclusion with wide width buffer and grazing land management	SL-6W	3	Linear feet	3,843
Small grain and mixed cover crop	SL-8B	30	Acres	506.8
Harvestable cover crop	SL-8H	14	Acres	227.2

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(Take a break?)

May need to adjust- check with SWCDs.

Agriculture statistics

National Agricultural Statistics Service, NASS (TMDL, 2016):

Item	Smyth County			Washington County		
	2012	2017	% change	2012	2017	% change
Farm Acres	166,656	123,214	-26%	192,123	176,344	-8%
Cattle/Calves	65,365	42,809	-35%	67,259	66,037	-2%
Beef Cattle	11,635	13,022	+12%	19,970	20,437	+2%
Dairy Cattle	1,741	1,282	-26%	2,587	2,170	-16%
Sheep	2,171	3,921	+81%	6,071	4,403	-27%
Horses	1,314	756	-42%	2,014	1,369	-32%

Are these the trends you still see? If not, how changed?
Should more focus be on beef cattle vs. dairy cattle?

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There is an updated report from 2022, but not available yet.

Potential Agriculture practices to reduce bacteria load

Changed?

Control Measures	% Effectiveness	Source	Units	Cost / Unit
Cropland Practices				
Long Term Vegetative Cover on Cropland (SL-1)	75%	1	acres	\$220
Cover Crop (SL-8B, SL-8H)	20%	1	acres	\$40
Livestock Waste Reduction Practices				
Afforestation of Erodible Crop and Pastureland (FR-1)	Land Use Change	1	acres	\$570
Small Acreage Grazing System – Equine (SL-6AT)	40%	3	acres	\$260
Stream Exclusion with Grazing Land Management (SL-6N, SL-6W)	100%	2	system	\$75,000
Pasture Management – Cattle (SL-9, SL-10T)	50%	1	acres	\$75
Permanent Vegetative Cover on Critical Areas (SL-11)	75%	1	acres	\$2,540
Water Control Structure (WP-1)	70%	3	acres treated	\$130
Stream Protection (WP-2N, WP-2W)	100%	2	system	\$15,000
Animal Waste Control Facility (WP-4)	40%	3	system	\$150,000

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What needs to be done to address Agricultural sources of bacteria?

1. What is the level of interest in installing best management practices (BMPs)? What % are interested in 10-, 25-, 35-, 50-foot buffers? What types of practices do they prefer?
2. What is the current growth trend for agriculture in the area? Do you expect to see significant changes in farming practices over the next 5-10 years?
3. Is there interest in rotational grazing systems? Other pasture management practices?
4. Is there interest in practices to address manure spreading on crop or pasture fields?

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Continued...What needs to be done to address Agriculture sources of bacteria?

5. Is there interest in converting poor pasture or erodible cropland to forest?
6. What % of cropland is already implementing conservation (e.g., continuous no-till) practices?
7. What would be the best outreach/education methods to recruit interest? Are there any groups in the watershed that would be good resources for education and outreach?
8. Are there other funding sources (in addition to DCR, NRCS and DEQ) that could help pay for installation of BMPs?
9. Any barriers to implementing stream fencing and improving pasture management in this watershed?

Next Steps

	Tentative Date
First Public Meeting	November 10, 2022 (Public comment period November 10- December 12, 2022)
Stakeholder Meetings	
# 1	January 25, 2023
# 2	February/March 2023- when?
Final Public Meeting	April 2023 (Public comment period 30 days after Final Public Meeting)
EPA Approval	June/July 2023? Available for DEQ 319 funded projects in 2024?

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2nd stakeholder meeting will focus on proposed practices (#, types, costs)...Might have draft plan to review.

**Any other thoughts or
questions, contact me!**

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